



METROPOLITAN  
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*Tom Hsieh*  
City and County of San Francisco

*Jean McCown*  
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*Fred Negri*  
Napa County and Cities

*Jon Rubin*  
San Francisco Mayor's Appointee

*Angelo J. Siracusa*  
San Francisco Bay Conservation  
and Development Commission

*Tom Torlakson*  
Contra Costa County

*Doug Wilson*  
Marin County and Cities

*Sharon Wright*  
Sonoma County and Cities

*Lawrence D. Dahms*  
Executive Director

*William F. Hein*  
Deputy Executive Director

**BAY BRIDGE DESIGN TASK FORCE**  
**Tuesday, March 18, 1997**  
**1:00 p.m. to 3:30 p.m.**  
**Port of Oakland**  
**Board Room, 2nd Floor**  
**530 Water Street**  
**Oakland, CA 94607**

Chairperson: Mary King  
Members: Sharon Brown  
Mark DeSaulnier  
Elihu Harris  
Tom Hsieh  
Jon Rubin  
Angelo Siracusa  
Staff Liaison: Steve Heminger

**FINAL AGENDA**

1. Welcome, introduction of MTC Task Force, and review of public participation process - Mary King, MTC
2. Introduction of participants  
S.F. Bay Conservation and Development Commission (BCDC)
  - Engineering Criteria Review Board (ECRB)
  - Design Review Board (DRB)Caltrans
  - Peer Review Panel
  - Seismic Advisory Board
3. Background and history of project - Jim Roberts, Caltrans
4. Presentation by Caltrans - Brian Maroney/Jay Mirza
  - Slide show - other replacement alternatives considered and how Caltrans arrived at cable-stay and skyway alternatives
5. Other Business/Public Comment
6. Boat tour to view Bay Bridge (approximate duration 2:30 p.m. to 3:30 p.m.)

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**Public Comment:** The public is encouraged to comment on agenda items at committee meetings by completing a request-to-speak card (available from staff) and passing it to the committee secretary or chairperson. Public comment may be limited by any of the procedures set forth in Section 3.09 of MTC's Procedures Manual (Resolution No. 1058, Revised) if, in the chair's judgment, it is necessary to maintain the orderly flow of business.

**Record of Meeting:** MTC meetings are tape recorded. Copies of recordings are available at nominal charge, or recordings may be listened to at MTC offices by appointment.

**Sign Language Interpreter or Reader:** If requested three (3) working days in advance, sign language interpreter or reader will be provided; for information on getting written materials in alternate formats call 510/464-7787.

(COMM/BAY BRIDGE/AGENDA)



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**For Release: March 14, 1997**

**Contact:** Steve Heminger, 510/464-7810  
Joe Curley, 510/464-7847

## NEWS ADVISORY

### MTC Bay Bridge Design Task Force to Hold Kickoff Meeting on March 18

**WHAT:** The initial meeting of the MTC Bay Bridge Design Task Force. At the meeting, officials will describe the process and timetable for involving the public and reaching consensus on the design of a new eastern span of the San Francisco-Oakland Bay Bridge. Officials from Caltrans and the Bay Conservation and Development Commission will also be in attendance.

Following the meeting, there will be a boat tour of the Bay Bridge.

**WHEN:** Tuesday, March 18, 1997  
Meeting: 1:00 p.m. to 2:30 p.m.  
Boat tour: 2:30 p.m. to 3:30 p.m.

**WHERE:** Port of Oakland  
Board Room, 2nd Floor  
530 Water Street  
Oakland, CA 94607

**WHO:** The names of the MTC Bay Bridge Design Task Force members, as well as other key participants, are listed on the meeting agenda, attached.

*The Metropolitan Transportation Commission (MTC) is the transportation planning, financing and coordinating agency for the nine-county Bay Area.*



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**CERTIFIED COPY**

Re: Bay Bridge Design Task Force  
Tuesday, March 18, 1997  
1:00 p.m. to 3:30 p.m.  
Port of Oakland  
Board Room, 2nd Floor  
530 Water Street  
Oakland, California 94607

MEETING  
March 18, 1997

ATKINSON-BAKER, INC.  
CERTIFIED COURT REPORTERS  
330 North Brand Boulevard, Suite 250  
Glendale, California 91203

(818) 551-7300

REPORTED BY: CINDY TUGAW, CSR #4805

FILE NO.: 9705571

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BAY BRIDGE DESIGN TASK FORCE

---oOo---

M-E-M-B-E-R-S

CHAIRPERSON: Mary King

MEMBERS: Sharon Brown  
Mark DeSaulnier  
Elihu Harris  
Tom Hsieh  
Jon Rubin  
Angelo Siracusa

STAFF LIAISON: Steve Heminger

---oOo---

P-R-O-C-E-E-D-I-N-G-S

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MS. KING: I am Supervisor Mary King and I am  
the chair of this task force. And I would like at this  
point to have each member of the task force who is

1 present introduce themselves. Our Contra Costa County  
2 representative, Mark DeSaulnier, is not going to be  
3 able to be here, the chair and the supervisor is.  
4 Angelo Siracusa, BCDC, delegate to MTC, I'm on the task  
5 force.

6 MR. RUBIN: I'm John Rubin. I'm the Mayor of San  
7 Francisco's representative to MTC on this task force.

8 MR. BROWN: I'm Sharon Brown. I represent the  
9 Contra Costa County.

10 MR. HSIEH: Tom Hsieh representing San Francisco  
11 Board of Supervisors in private capacity. I was  
12 trained as an engineer so we have somebody that's going  
13 to actually understand what you say.

14 MS. KING: Let me describe the purpose of the task  
15 force briefly and it is two-fold. First, it is our  
16 purpose to develop a consensus recommendation on a  
17 design option for a new eastern span of the Bay Bridge,  
18 described as the eastern span because right now we are  
19 anticipating that that's what we are looking towards  
20 versus a retrofit of the current span.

21 Caltrans has proposed two options: A skyway  
22 viaduct and a double-tower cable-stay bridge but has  
23 indicated that they're willing to consider other  
24 options such as a single-tower cable-stay bridge and  
25 probably any number of other possibilities.



1           Caltrans also will be reviewing with us today  
2 various design alternatives they've considered, but  
3 which they eventually rejected for engineering or other  
4 reasons.

5           It was important particularly to Angelo  
6 Siracusa who raised this at our first time of  
7 discussing this that we look at what was considered and  
8 understand why it was thrown out.

9           All design options will be evaluated by a team  
10 of cost reviewers, engineers, seismic specialists and  
11 design experts that are shown as the first three steps  
12 on the large timetable to my left which is available  
13 for you to review.

14           The second purpose of the task force is to  
15 recommend any additional features, what I have  
16 described as the chocolate fudge on top of the vanilla  
17 ice cream bridge that the governor guaranteed us that  
18 might be included as part of this bridge project.

19           But let me be clear about what should be  
20 considered as additional features or, quote, unquote,  
21 extras and what should not. MTC does not believe that  
22 having two standard shoulders on the new bridge is an  
23 extra. We also do not believe that additional seismic  
24 retrofit of the existing west span so that it is as  
25 strong as the new east span is an extra. And there may

1 be others that this group would like to raise that  
2 would not be considered as extras and which we  
3 considered -- expect to be part of the package that is  
4 offered to us by Caltrans and the state prior to us  
5 adding our chocolate sauce.

6 MTC believes both of those items I just  
7 discussed should be included in the base cost of the  
8 new bridge. This base cost will be used to determine  
9 the cost-sharing arrangement that is currently being  
10 negotiated between our legislatures and others in  
11 Sacramento.

12 We do acknowledge, however, that certain  
13 additional features such as cable towers, possibly  
14 bike lanes and other design elements that may be  
15 desired by the Bay Area community, that those costs of  
16 these additional features should be borne not by the  
17 state but by our local Bay Area community and that we  
18 are prepared to go to that community to seek their  
19 support for these additional costs.

20 Let me give you a schedule of the task force.  
21 The large timetable that you see shows the engineering  
22 and design review experts are scheduled to complete  
23 their work in early June, culminating in a report to  
24 this task force.

25 The MTC task force will then have another two

1 months to complete its deliberations by the end of July  
2 and what we are about is the public participation  
3 process. We are embarking upon that today. We  
4 appreciate the Port of Oakland for allowing us to  
5 gather in this work space, to begin this public  
6 process.

7 And we appreciate the coverage from local and  
8 national media to let people know that it is now time  
9 for them to step up and weigh in with their opinions on  
10 this incredibly important and critical project, the  
11 only one that we will experience of its type over the  
12 next century.

13 As part of the task force deliberations, we'll  
14 be actively soliciting the advice and opinions of the  
15 public on the design of the Bay Bridge. The region's  
16 residents will be able to voice their comments through  
17 four different avenues. Public meetings, one each will  
18 be held in Alameda, Contra Costa, Solano and San  
19 Francisco County. The list and times of the meeting  
20 places are available in a handout on the table in the  
21 back and hopefully publicized by our local media.

22 We'll have a telephone comment line, dial the  
23 regional transportation telephone number which is  
24 travel info at 817-1717 and press Option 7. And no  
25 area code is needed. And you'll be able to directly



1 comment by voice to us on your opinions.

2 The Internet, there will be two options,  
3 addresses for which there are also on a handout in the  
4 back. One would go to Caltrans Web site and click on  
5 the appropriate words or send Caltrans an E-mail and  
6 that's the way they'll get that information.

7 And we're also pleased to announce that  
8 Senator Bill Lockyer is working on a CD ROM of bridge  
9 design options that may be hopefully available within a  
10 month or so. You also may mail, write in your comment,  
11 some have already begun to do that. I have a folder  
12 full of ideas that have come to my offices of county  
13 supervisor. We would like in the future for those to  
14 be sent to Mary King, care of MTC, 101 Eighth Street in  
15 Oakland.

16 Before we continue, I'd like to remind any of  
17 you who'd like to make a comment on this agenda at the  
18 conclusion of the meeting to please fill out one of the  
19 blue request-to-speak forms that are available on the  
20 table in the back and hand them in to one of the MTC  
21 staff persons.

22 Now I'd like to go around the table and hear  
23 from fellow members of the task force to -- with any  
24 suggestions that they might have with any anticipation  
25 of what will occur, with any input that they'd like to

1 put in to staff at this point to be considered as we  
2 begin our deliberations.

3 Mr. Siracusa?

4 MR. SIRACUSA: Very simply, I think that we've got  
5 a seismic issue that must be resolved. And I hope that  
6 we can do that as quickly as possible. The engineering  
7 and design issues are obviously very important though  
8 it's most important that we get the bridge completed.  
9 And I hope that we can use these deliberations to  
10 analyze all of those things but to move toward building  
11 of a new bridge instead of simply retrofitting the  
12 existing structure.

13 MS. KING: Mr. Rubin?

14 MR. RUBIN: It's the mission of this committee to  
15 develop I believe it should include the Bay Bridge in  
16 totality, not just the eastern span. The approach  
17 ramps to and from Yerba Buena Island and access to  
18 Treasure Island must be addressed. The western span's  
19 condition should also be examined, keeping in mind that  
20 Caltrans is already working with the city on the  
21 retrofit, and replacement of approach ramps in San  
22 Francisco.

23 The new transbay transit terminal regardless  
24 of its potential location should be included in  
25 discussions since it is part of the Bay Bridge, its

1 transit access from the east bay and future congestion  
2 on the structure.

3 MS. KING: Thank you.

4 Mr. Brown?

5 MR. BROWN: I look forward to looking at this  
6 group. I feel the economic viability of the affair  
7 depends on our transportation and this is one of the  
8 major links in the transportation complex. So we look  
9 forward to hearing from all of you. As Mary King said,  
10 we've already started hearing from people on what  
11 should be done. And let's hope we don't get acrimony  
12 or one-sided issues and go forward with this program.

13 Thank you.

14 MS. KING: Commissioner Hsieh?

15 MR. HSIEH: First I want Commissioner Rubin's  
16 proposal to make sure that the transbay terminal  
17 structure will be part of the package. I think that  
18 the evidence is clear that we must have that as a part  
19 of this program.

20 Second is I think -- I believe that a major  
21 structure as such is historically important to us, not  
22 only the opportunity to seek out all possible design in  
23 every possible way to see that this will become one of  
24 the most wonderful features in the bay region. In the  
25 meantime, we have to address environmental problems,



1 structural problems and other problems. But I think we  
2 have the responsibility to flesh out all possible  
3 solutions to get the best we can by this exercise.

4 MS. KING: Thank you. To show that the comment of  
5 Tom Hsieh and John Rubin are not parochial, I'd like to  
6 add our support of looking at the transbay terminal, to  
7 be included as a portion of this project. The  
8 commuters from the East Bay who use the Bay Bridge  
9 regularly, that is their place of termination. And as  
10 we try to move people from welfare to work by means of  
11 public transportation and that terminal it becomes  
12 increasingly important. So we are already united on  
13 that front.

14 We also have another partner in this  
15 discussion, and thankfully we have them because they  
16 are in many ways the experts, and that's the BCDC, Bay  
17 Conservation and Development Commission. Here to  
18 introduce some of the technical experts who will be  
19 assisting the task force in making its recommendations  
20 is the executive director of BCDC, Will Travis.

21 MR. TRAVIS: Thank you, Supervisor King. Nice to  
22 be working with you again.

23 Our role here at BCDC is that ultimately this  
24 bridge is going to need a state permit from BCDC. So  
25 we are very anxious to be working at the very beginning

1 of the process so that we have as much assurance as  
2 possible that ultimately when Caltrans comes to us in a  
3 few years from now with an application for a permit,  
4 there's a reasonable likelihood it can be approved.

5 To assist BCDC in dealing with matters like  
6 this, we have two volunteer boards of experts, one is  
7 our engineering criteria review board which is made up  
8 of structural and seismic engineers and other experts  
9 in -- particularly in seismic issues.

10 And we are fortunate here in the Bay Area to  
11 have some of the best in the world who are willing to  
12 volunteer their time in advising BCDC. They will also  
13 be advising this panel.

14 We also have a design review board which, like  
15 the engineering board, is made up of some of the best  
16 people in the world. Our design review board, unlike  
17 some local design review boards, isn't what I would  
18 call a fashion review board. What they try to do is  
19 ensure that anything that is built along the shoreline  
20 not only looks good but works well.

21 So I think it's very critical that our design  
22 board is working in the context of these other experts  
23 on bridge design because ultimately I think we have to  
24 ensure that the solution that we come up with here is  
25 not the winner of a beauty contest because bridge

1 design isn't fashion design. I think we have to be  
2 looking to develop the design criteria in the hope  
3 that, once we figure out what we're trying to  
4 accomplish, the design of the bridge will flow from  
5 meeting those requirements.

6 I also agree with Supervisor Hsieh that we  
7 have to make sure that we consider all the alternatives  
8 because, if we are to provide for the public a broad  
9 consensus, I think it is essential that everyone feel  
10 that nothing has been left out.

11 We're delighted to participate in this  
12 process. Let me introduce to you Professor Edward  
13 Wilson who is the chair of our engineering criteria  
14 review board and he will introduce the other members of  
15 the board. And then behind me, Steve Thompson, who is  
16 the vice chair of our design review board and will  
17 introduce the other members of the design board.

18 MR. WILSON: I'm Professor Ed Wilson, unit over  
19 California and chairman of the committee. And I'm a  
20 structural engineer. I'll let the other members  
21 introduce themselves in their specialty.

22 MR. MALONEY: I'm Rick Maloney. I'm a structural  
23 engineer in private practice.

24 UNIDENTIFIED PERSON: I'm (inaudible), I'm  
25 (inaudible.)



1           MR. BOYCE: I'm Roger Boyce with the U.S.  
2 Geological Survey. My specialty is engineering  
3 seismology.

4           MR. WOSSER: I'm Tom Wosser. I'm a structural  
5 engineer in private practice.

6           MR. BROWN: I'm Robert Brown. I'm a geologist  
7 with the U.S. Geological Survey, (inaudible) retired  
8 from the Geological Survey.

9           MR. ARNOLD: I'm Chris Arnold. I'm an architect  
10 in private practice, and I work specifically the  
11 architectural aspects of the seismic problem.

12          MR. THOMPSON: I'm Steve Thompson, architect in  
13 private practice in architectural design.

14          MR. HERSH: I'm Brian Hersh, structural engineer  
15 in private practice.

16          MS. HELTER: Jackie Helter, landscape architect in  
17 private practice.

18          MR. SCHULER: Garn Schuler, (inaudible) private  
19 practice.

20          UNIDENTIFIED PERSON: John Crickton, who is our  
21 chairman, Margaret Jones is with Hargrave, a landscape  
22 architectural firm, Peter Walker of the firm Peter  
23 Walker, Johnson and Parker.

24          MS. KING: Thank you.

25                 Caltrans also has a team of experts to help

1 the task force and Brian Maroney who is the project  
2 manager for the eastern span of the Bay Bridge for  
3 Caltrans will introduce them.

4 MR. MARONEY: My name is Brian Maroney. I'm a  
5 bridge engineer for transportation and there are two  
6 boards that we have asked to come and participate in  
7 this process. And we would like to offer our  
8 assistance in helping this panel make some important  
9 recommendations.

10 What I would like to do is start with the  
11 seismic advisory board, essentially our top board,  
12 which makes recommendations to the California  
13 Department of Transportation on earthquake  
14 related-issues, with respect to the structures that we  
15 are responsible for. So they're our top advisory  
16 board.

17 And basically most of that board is made up of  
18 members that were part of the governor's board of  
19 inquiry following the 1989 Loma Prietta earthquake. So  
20 we tried to create a lot of continuity between the  
21 inquiry so they could continue to make recommendations  
22 to us.

23 What I'd like to do first is present the  
24 chairman of that board, which is Professor Joe Penzien,  
25 (inaudible) University of California Berkeley and in

1 private practice. Beside Dr. Penzien is (inaudible),  
2 professor at University of California at Berkeley.  
3 Both of them have spent a lot of time in bridge  
4 research. Professor Frieder Seible, and he's a  
5 professor at the University of California San Diego,  
6 has done a tremendous amount of bridge research since  
7 1989 with respect to seismic issues, also practices  
8 privately.

9 Next to him is Professor Ed (inaudible) and  
10 he's a professor at the University of California at  
11 Davis, in geotechnical engineering, specializing in  
12 earthquakes. He also spent many years in private  
13 practice with Woodward Clyde in Southern California  
14 again focusing on earthquake-related issue.

15 Next to him is Chuck Seim, who is a  
16 professional engineer in private practice, works for  
17 T.Y. Lin and is the chair of our peer review panel.  
18 The peer review panel is a special group of people  
19 typically Caltrans likes to identify, and regularly  
20 will take requests from the community, outside of  
21 Caltrans, on who they perhaps might like to have or who  
22 structural engineer associates might like to have. And  
23 Chuck chairs that.

24 Next to him is Gerry Fox, bridge engineer,  
25 private practice, has extensive experience in bridge

1 design.

2 Also I'd like to point out Joe Nicocetti,  
3 wearing two hats today, he's also one of our top  
4 advisors. Again, he's a structural engineer in  
5 practice and has quite a lot of experience with respect  
6 to bridges and earthquakes.

7 MS. KING: We were hoping and expecting that Mayor  
8 Harris would be with us today. He has not  
9 arrived yet. We're going to begin our presentation,  
10 however. He's represented by his director of public  
11 works and a member of his staff, so I'm sure they will  
12 fill him in on the beginning of our discussion. We  
13 fully expect Mayor Harris to participate in future  
14 discussions.

15 We'd like now to have a presentation of  
16 Caltrans to talk about the various alternatives for the  
17 bridge design that Caltrans considered, how the agency  
18 arrived at the cable-stay and skyway designs that are  
19 before us currently.

20 MR. MULLIGAN: We were going to have Item 3 first,  
21 if it's your pleasure. That would be Jim Roberts, he's  
22 also our chief structural engineer.

23 MS. KING: Background and history of the project.

24 MR. ROBERTS: Good afternoon. I'd like to use the  
25 mike.

1 I'd like to give you a brief background on how  
2 we got to where we are today. Obviously seismic safety  
3 is paramount and that's been mentioned several times by  
4 members of your panel. But aesthetics is also  
5 important. We recognize that you'll see on the wall  
6 and there will be a discussion following my  
7 presentation by our chief architect and Brian Maroney  
8 on the various alternatives we have asked to study  
9 beginning in January 1996 when it became obvious that  
10 the cost of retrofitting the East Bay spans of the Bay  
11 Bridge were becoming prohibitive.

12 We've had a policy that if retrofit exceeds 50  
13 percent of replacement, it's a viable alternative to  
14 replace the structure. And it's been our policy and  
15 been implemented in several locations.

16 Our director gave us the authority to move  
17 ahead and look at various alternatives which we have  
18 and we'll explain those.

19 About December of 1996 last year we had done  
20 enough work, used value analysis teams to review our  
21 work and, as you know, made presentations to the  
22 administration. And on February 13th, we were given  
23 permission to conduct a press conference, all or most  
24 of the information had been leaked out previous to that  
25 time. But that's the process we go through.

1           We presented at that time graphics which are  
2   on the wall to your right, my left here, which most of  
3   you are familiar with. They've been presented in the  
4   newspapers. We essentially tried to show the existing  
5   bridge, what the retrofitted structure would look like,  
6   and what we consider a high/low range of alternatives.  
7   And there are many alternatives in between.

8           I know that's created some controversy in the  
9   press but we tried to give the range. And there are  
10   many issues, as you've mentioned, Madam Chairman, that  
11   need to be resolved.

12          I know that the director has discussed with me  
13   the fact that we will have to look at access to  
14   Treasure Island and Yerba Buena Island, if we build a  
15   new bridge in there, we certainly have to improve  
16   access. So that's not an issue that we would debate at  
17   all.

18          I would like to mention in closing that,  
19   although seismic safety is paramount, and that's the  
20   reason we're replacing or retrofitting these  
21   structures, we have worked with the city on the complex  
22   of the transbay transit terminal because it affects the  
23   future off-ramps and the reconstruction. I think we've  
24   addressed most of the issues and will continue to do  
25   so.



1           We have put together a panel and several  
2 members of that panel are present to help us get the  
3 best people in the United States, the Bay Area and a  
4 couple from overseas who have a lot of experience with  
5 either these segmental or cable-stay bridges. Dr. T.Y.  
6 Lin, who all of you are familiar with, has agreed to be  
7 a member of that advisory panel.

8           Mr. Gerard Fox, who's already been  
9 introduced, has extensive experience with these kinds  
10 of bridges. Mr. Seim will chair that committee and  
11 you've met him. Ben Gurwick has agreed to be a member  
12 of that advisory panel. Dr. Scardelis from U.C.  
13 Berkeley and Dr. Seible from U.C. San Diego. We have  
14 two gentlemen who have extensive experience, Eric Slyke  
15 from Stuttgart, Germany, who several of our members are  
16 in contact with, and Christian Mann from Switzerland,  
17 one or both of those gentlemen will assist us.

18          I have four or five other names but I have not  
19 gotten their agreement so I don't want to announce  
20 their names today. But we intend to use the best  
21 people in the world and we also want to concentrate on  
22 Bay Area engineers because we have a lot of good  
23 engineers and architects here in the Bay Area. But we  
24 do want to show the critics that we're not parochial  
25 and we will look to people from outside the Bay Area to

1 help us get the best bridge we can for the East Bay  
2 span.

3 Thank you.

4 MS. KING: Thank you, Mr. Roberts.

5 And you raised an issue that brings me back  
6 to -- we're all on the same page. As you all probably  
7 know, State Senator Bill Lockyer pro tem has been  
8 taking this project on as sort of a top priority, and  
9 contacted me this week to make sure we were looking at  
10 experts from throughout the world with regard to  
11 engineering and architects on the project. And so he  
12 was obviously on the same wavelength as you.

13 He has a representative here as chief of  
14 staff, Elsa Cashman, that will be following the project  
15 closely. And I will look forward to being able to work  
16 with him to make sure that --

17 MR. ROBERTS: I've been in several presentations  
18 with Senator Lockyer so we're well aware of this.

19 MS. KING: Thank you very much.

20 Now to the presentation by Caltrans, Brian  
21 Maroney and Jay Mirza, let's talk about the  
22 alternatives, and what you've looked at and let it go  
23 from here.

24 MR. MARONEY: Madam Chairman, what I'd like to do  
25 perhaps in the next 30 minutes is give you a little

1 more detail into the specific seismic challenges at the  
2 site and hopefully answer in about 30 minutes how did  
3 we get where we're at right now and a little more  
4 background on some of the things we've looked at  
5 because I think perhaps work is a little more extensive  
6 and perhaps everybody is aware of right now.

7 And what I'd like to do is use a few slides to  
8 assist me in that so everybody might want to move  
9 around and get a little comfortable. I'm going to be  
10 making a presentation, perhaps ten or 15 minutes, and  
11 my architect, Jay Mirza, will be supplementing that  
12 from an architect's perspective.

13 Dave, if you can turn on the slide projector.

14 What I'd like to do is introduce the project  
15 and some of the conceptual designs. First let me  
16 introduce the site. I'm going to be over here.

17 First of all, where are we talking about? I'm  
18 sure everybody who is here tonight knows exactly what  
19 this map is. What I want to do is focus everyone's  
20 attention right here. This is Route 80 connecting  
21 essentially Oakland and San Francisco.

22 If you look at this map it's pretty easy to  
23 see that this is the most direct route across the bay,  
24 connecting San Francisco, a major metropolitan area, to  
25 Oakland, other major metropolitan area and essentially

1 the rest of the United States most directly. That's  
2 clearly important.

3 And it's so important. And there are many  
4 measures of importance. But use is clearly a very  
5 direct measure of importance and here Route 80 over  
6 that bridge carries almost 300,000 vehicles a day, just  
7 underneath that number so big ADT.

8 A goal has been established to have this  
9 bridge operational following a large earthquake. And  
10 that's similar for the structural engineers, audience,  
11 to hospitals, schools, police stations. And their  
12 performance is design of UBC, kind of an important  
13 structure, we want it functioning following the event.  
14 That's an important element of this project. A  
15 particular challenge.

16 If this is the structure we're talking about,  
17 this is the Oakland side reaching over the Yerba Buena  
18 Island. San Francisco over here. The structure starts  
19 here, travels all the way over here to the island, into  
20 the tunnel.

21 I'd like you to focus right here, change the  
22 geometry, rule of thumb, change in geology, change in  
23 mass, stiffness. Look for problems.

24 Many bridge -- this bridge actually is a  
25 composition of many types. There are varying types

1 across the structure, foundations are different, depth  
2 of water is different, elevation of the roadway is  
3 different. And 60 years ago they designed based on  
4 economics, and the most economical bridge along the  
5 length of the structure was selected and that's why  
6 there are so many different bridge types.

7 You can actually count 11 different bridge  
8 types in the Bay Bridge. And potential modifications  
9 to the Bay Bridge topography is also a factor here that  
10 we need to incorporate. We kind of like to stay away  
11 from that.

12 In my professional opinion, San  
13 Francisco-Oakland Bay Bridge east side is vulnerable to  
14 large earthquakes. And I think Loma Prietta response  
15 stands to witness that. That was a magnitude 7.1 event  
16 60 miles away. 60 miles away. It was a very short  
17 duration, characteristically for magnitude 7 event,  
18 about half the duration seismologists would typically  
19 expect. Unsatisfactory response witnessed in the  
20 collapse near E9 and, very important issue, it's out of  
21 service for a month and that impacts the entire Bay  
22 Area commute, and that impacts all of California and  
23 probably most of the United States.

24 What about a closer event? What about on the  
25 Hayward fault, San Andreas, perhaps magnitude

1 earthquake less than 7.1 perhaps can cause. Loma  
2 Prietta, essentially what happened, near that change in  
3 geometry, change in stiffness, this portion of the  
4 superstructure slid away from this E9 support and this  
5 is essentially what happened, this is in the undesigned  
6 form, the superstructure slid eastward, relative to the  
7 towers. The tower actually was accelerated, this  
8 dredge, shearing all the bolts off between the  
9 superstructure and the tower connection and this is  
10 essentially what resulted. We dropped a span. Bridge  
11 was out of service for a month.

12 What I'd like to do now is give you a little  
13 project history. There are a lot of things that we've  
14 spent working on for the last two and a half years on  
15 the retrofitted span that we can apply, that we would  
16 like to offer to the community. First of all, retrofit  
17 design.

18 We've determined that, quite frankly, in our  
19 opinion that it's costly, in fact, too costly. And  
20 there's relatively higher impact to transbay commuters  
21 if there's retrofitting. If we're going to work on all  
22 the members of the structure, and later on I'll show  
23 you a couple slides how most of the members are up in  
24 the superstructure, very difficult to work on most  
25 members, we would not like to do that.



1           Also question of reliability, of most  
2 serviceability. Reliability is pretty essential, you  
3 can think of a picture in your mind or analysis the  
4 difference between a Jaguar, four carburetors, two  
5 batteries, and a Toyota Tercel, one battery. Chances  
6 are you go out to a Jaguar and you're going to turn the  
7 key and it's not going to start as often as the Tercel.

8           You can apply this analogy and good  
9 engineering practice to bridges. And that's one of the  
10 reasons my professional opinion is I don't think we  
11 should retrofit. We should go with a new bridge and  
12 we're actually looking for this commission to comment  
13 on that.

14           We've determined that the replacement bridge,  
15 relatively speaking, relatively speaking, better value  
16 for your money. It's also more reliable. Addresses  
17 additional long-term challenges.

18           Does everybody remember the deck  
19 rehabilitation that took place on the Golden Gate  
20 Bridge about ten years ago? The same situation is  
21 coming up on the existing east span in about 20 years.  
22 Also deck resurfacing work is going to be done for skid  
23 control safety. We can avoid those kinds of things if  
24 we go with the new bridge now and that needs to be  
25 incorporated in the decision about value.

1           If we look at the east span right now, from  
2           over Treasure Island, here's the cantilever, island  
3           viaduct, double deck truss system, relatively long  
4           span, 500 foot span here, about 125 feet in the air.  
5           This is E9 and then we get smaller, 288 foot span, lots  
6           and lots of columns. There are over 30 piers up and  
7           down this bridge, a lot of piers.

8           When you look up into the superstructure, this  
9           is essentially what you see. Lots and lots of members,  
10          it's very easy to quickly count 10,000 members, tens of  
11          thousands of members in this bridge. And if you want  
12          to start getting particular in counting floor beams,  
13          you can quickly get into -- notice some of the members  
14          in existing structures, perhaps very beautiful,  
15          graceful but notice they're actually built up members  
16          of lots of little pieces.

17          There's no such thing as a single member that  
18          goes all the way apart, across, you might see like in a  
19          continuous piece of concrete beam or continuous steel  
20          I-beam, et cetera. They're built up members. And  
21          that's why they're called built-up members.

22          Now, the question or concern about some of  
23          these is they're made up of lots of little pieces,  
24          perhaps here angles, perhaps here lacing and only takes  
25          one of these members to have an imperfection, one of

1 these members to behave in a fashion you would not like  
2 them to behave and essentially starting an avalanche of  
3 unacceptable responses.

4 Now, these kinds of elements were very popular  
5 about 60 years ago, can be very economical. However,  
6 they have a characteristic which is not a good  
7 characteristic in an event of an earthquake. This is  
8 something, characterization of what we call in the  
9 engineering field as brittle behavior, goes up to some  
10 maximum load-carrying capacity, and then its capacity  
11 to function degrades as more deformations take place.  
12 This is called brittle behavior, a snapping kind of  
13 behavior. This is something you don't want and  
14 elements that are going to see high strains in an  
15 earthquake. This is elements you don't want in a fused  
16 region.

17 What you'd like to do in a modern structure is  
18 have elements that are very forgiving, very tough, very  
19 ductal, and they can obtain a certain maximum  
20 load-carrying capacity. And if the deformations, if  
21 the member is deformed to even greater levels than the  
22 designer expects, they still continue to carry their  
23 load, their capacity doesn't degrade.

24 Retrofit strategies, these are some of the  
25 things we learned in our retrofit work. First our

1 priorities were when we were picking our strategies and  
2 you can almost draw an analogy between strategy  
3 selection to type selection. First one provides  
4 seismic safety, that was our number one criteria.  
5 Second, minimize impact to the transportation system.  
6 Let's not get in the way of business.

7 Then, of course, cost, post-earthquake  
8 functionality. If you have an earthquake and there's  
9 going to be a little damage someplace or some amount of  
10 damage someplace, you've got to be able to get to it,  
11 got to be able to evaluate it and repair it  
12 essentially.

13 Aesthetics, environmental issues are  
14 absolutely important, extremely important, particularly  
15 at this site. We usually do a qualitative -- I usually  
16 have a qualitative design phase where we actually allow  
17 ourselves to build up a little more confidence as we go  
18 and then eventually move into quantitative design phase  
19 and things we consider are the exact same things we  
20 consider in the full design, things that could affect  
21 our designs. We consider rock motions from a  
22 seismologist, consider site response from the  
23 geotechnical earthquake engineers, performance, we try  
24 to be informed shoppers. When this earthquake hits in  
25 the future, what kind of performance do we want?

1 Foundation response, and we actually incorporate what  
2 kinds of permanent deformation might we expect.

3           You always read in the newspaper after an  
4 earthquake how much further perhaps Alameda Island  
5 moved or northern portion of Los Angeles actually moved  
6 permanently from satellite measurements after a  
7 Northridge earthquake. We try to respect those.  
8 Consider all the elements of the structure, ours and  
9 the superstructure. Performance criteria that we felt  
10 were the appropriate performance criteria for the  
11 retrofit included with this, we expect superior  
12 earthquake performance for the toll bridge, we  
13 recognize that, we found fully functional but too  
14 costly.

15           That's what everybody as a group kind of  
16 decided that was appropriate for these toll bridges  
17 following the Northridge event but didn't have any cost  
18 data. We're not completely informed shoppers and found  
19 it was too expensive for some of these so what we  
20 concluded or finally arrived at a chief consensus with  
21 was provide life safety. You have to provide life  
22 safety. Then balance between functionality and cost.

23           Additionally, post-earthquake inspection plans  
24 were developed by Caltrans, all analysis design have  
25 been maintenance engineers. We have to be able to

1 inspect it and be able to act after an event and goals  
2 established, emergency traffic needed to flow across  
3 immediately. There might be reduced flow of traffic  
4 for short-term. Those are some of our goals and  
5 perhaps usable in the next coming months in your  
6 decisions.

7 I cannot stress enough, the last two and a  
8 half years I've learned a lot about predictions of what  
9 various experts in the field of seismology and  
10 geotechnical earthquake engineers, what they believe  
11 coming events might be and we truly are  
12 competing against time.

13 The governor's board of inquiry chose an  
14 appropriate title. Bay Area records show, just to go  
15 back through history, Magnitude 7 or greater event on  
16 average happens about every 70 years.

17 Now I also want to say spacing, time intervals  
18 between events are not always the same. If you just  
19 pull out an average, it's about every 70 years.  
20 Magnitude 6 or greater about every 15 years just on  
21 average.

22 Now, prediction of earthquakes are a lot more  
23 complicated than pulling out an average. For rules of  
24 thumb, things in your head to be available, rule of  
25 thumb 2 percent per year in the Bay Area for magnitude



1 7 or greater. You can find experts that say a little  
2 lower, say a little higher and actually more  
3 complicated than an average per year. But the two  
4 rules of thumb same thing with magnitude of 6 or  
5 greater, ten percent per year.

6 Why are we worried about a magnitude 6 event?  
7 Everybody realizes that's big. Venezuela they started  
8 having problems in soft soil sites at about 6.3 and  
9 this is clearly a soft soil site. So I think these  
10 numbers are important to consider.

11 Also officially reported in 1990 working  
12 group, the USGS, they had a 30-year probability of one  
13 or more magnitude 7 plus events in the Bay Area  
14 occurring on one of the faults, 67 percent. 67 percent  
15 chance in the next 25 years of magnitude 7 plus.  
16 Competing against time, absolutely.

17 A couple other numbers, the Hayward fault  
18 segment, very near field and their particular challenge  
19 is near field motion. 28 percent of a magnitude 7 plus  
20 event in the next 20 years on the segment that's  
21 running right through the campus of the University of  
22 California Berkeley. Smaller events are even more  
23 likely. Magnitude 7.25 is the design event at this  
24 site for Hayward controls the eastern portions of the  
25 east span of the Bay Bridge.

1           San Andreas fault near the island, the  
2 peninsula segment of San Andreas estimated 23 percent  
3 of a 7 plus earthquake in the next 23 years magnitude.  
4 It's a very challenging site. Geology, it varies in  
5 rock depth, different types of sand, clay. Water  
6 complicates the thing and earthquake amplifications are  
7 tremendous at this site. The soils amplify the motions  
8 to tremendous levels at certain locations and demands  
9 of the structural systems are unusual and large.

10           Just to give you an image of the ground, this  
11 green area over this plot, this is rock. This is a  
12 cross-section of essentially the bay at the east span.  
13 You can recognize Yerba Buena Island here, this is the  
14 cantilever portion and as you approach the eastern  
15 approaches down by Oakland. The various colors are  
16 here and lenses, they depict different types of soils  
17 underneath the water, the blue area is the water.

18           So underneath this structure there are great  
19 ranges of soil types and their conditions and they  
20 range from rock, right at the surface, to water, sands,  
21 clays, and rock as deep as over 500 feet.

22           And as the earthquake waves propagate up from  
23 the rock through the soil into the old structure or  
24 potentially some day the new structure, you have to  
25 expect the earthquake motions to be modified by the

1 soil that it vibrates through. And as the waves pass  
2 up, propagate up through the soil, they change the  
3 earthquake load.

4 So on one side of the bay the earthquake -- a  
5 characterization of the earthquake motions might look  
6 like this. On the other side of the bay in mud it  
7 might look like this. It's not important necessarily  
8 to understand what these are. It's important to  
9 understand that they are different. The problem  
10 changes as you go across the bay and that's an extra  
11 challenge at this site.

12 You have to solve many problems. At Caltrans,  
13 when we do type selection, we go through a list of  
14 criteria that are pretty standard. But on this site,  
15 when you are making your decisions and recommendations,  
16 a few things that we've kind of decided that are  
17 unusual. The performance criteria, alignment and  
18 structure type, they're all tied together. You can't  
19 necessarily go shopping and say, "This is the  
20 performance criteria I want." And then this is the  
21 alignment and this is the structure type. They're  
22 interdependent.

23 Some structures fit in certain alignments,  
24 some structure types fit and don't fit in others. And  
25 some structure types inherently cannot offer you the

1 same level of performance criteria, they just cannot.  
2 So you can't really go through item by item. You kind  
3 of need to address the problem as a whole.

4 And the governor's board of inquiry following  
5 the 1989 events here in the Bay Area, they have made  
6 recommendation of performance criteria and for  
7 important bridges, their performance level, how should  
8 the bridge be functioning after an event, for the  
9 safety evaluation event. This is essentially a big  
10 earthquake, for a big earthquake, important bridge.  
11 Their recommendations were immediate service and  
12 repairable damage.

13 So I'm sure this can be expanded in greater  
14 detail but on the surface, kind of thing we're thinking  
15 about, serviceability and repairable damage.

16 Now, it's important to understand that as you  
17 choose these different things, nothing -- everything is  
18 tied to dollars. And with additional performance  
19 criteria the dollars go up. And at some point they're  
20 finishing returns and it's not performance, it's  
21 essentially everything. All those factors are  
22 together.

23 The alignments, there are an infinite  
24 selection of alignments and some of them, both sides of  
25 the bridge and there are pros and cons for those and

1 I'm sure in the coming months we'll get into those in  
2 great detail. If some structures need to have tangents  
3 or straight highways, straight portion of the freeways  
4 for them to fit in the alignment, we need to go out a  
5 little further to accommodate the straight portions  
6 required for the structure type. And that extends us  
7 out further and that should be recommended as more  
8 expensive.

9 Quite frankly, is all doable. What we're  
10 really looking for and, quite frankly, very excited,  
11 we've been working on the retrofit for two and a half  
12 years and we're very excited to move into what we think  
13 is the final stage. And we're ready to do this and I  
14 believe our seismic advisory board and peer review  
15 panel are anxious and we're really looking forward to  
16 working with the BCDC review board which we interact  
17 with regularly, and the design review boards, and other  
18 recognized groups around the Bay Area and, of course,  
19 the metropolitan transportation commission and your  
20 special task force. And what I'd like to do is ask Jay  
21 to initiate the portion of the presentation on  
22 architecture.

23 MR. MIRZA: When you first walked into the room  
24 I'm sure most of you had an opportunity to look around  
25 the walls and look at the conceptual ideas that the

1 aesthetics and models unit came up with. These were  
2 done, believe it or not, in a two-week period.

3 We received some engineering support from the  
4 engineers in terms of what some of these bridge types  
5 could do but we actually had more fun in trying to come  
6 up with these ideas.

7 These are just pretty pictures at this stage  
8 of the game and, as you heard earlier, nothing is  
9 poured in concrete. The idea of this hearing and four  
10 more hearings is to be able to have the community get  
11 involved, get the necessary input, architects and  
12 architecture. We don't live in a little vacuum. We  
13 like to hear and understand what the neighborhood is  
14 all about.

15 We've learned so much already from the BCDC  
16 design review board about the sensitivities that are  
17 necessary to understand with respect to the traveling  
18 public, the pedestrians and people that are visiting  
19 the Bay Area. It's very crucial that whatever we come  
20 up with, it has to look attractive, but at the same  
21 time has to work as an engineering monument to this  
22 particular beautiful region.

23 So with that, I'd like to -- there we go, back  
24 up one.

25 I'd like to sort of walk most of you through



1 this bridge from aerial shots and some lower-level  
2 ground shots. And these are, most of you know what  
3 this bridge looks like but the best views of this  
4 bridge are many times from the air. And we don't  
5 really appreciate this bridge as perhaps when we fly  
6 over it.

7 So if these look a little redundant, it's  
8 because I want to explain why it is important that we  
9 maintain a beautiful bridge. And you can see there's a  
10 huge contrast in bridge styles between the west side  
11 and the east side. And I think Brian Maroney pointed  
12 out to that.

13 Obviously most of the heavy traffic, and then  
14 navigational traffic, is on the west side. And we have  
15 basically barge traffic underneath the cantilever  
16 portion of the bridge. So I will move on to the next  
17 slide.

18 This is a lower shot of the west span and you  
19 can see the large center anchorage that the cables come  
20 to from both sides from the upper Yerba Buena Island  
21 and the San Francisco side.

22 Getting closer to San Francisco, these are  
23 approaches, on the extreme left-hand side are the  
24 concrete viaducts that approach the bridge and about a  
25 third of the way to the left is the anchorage where the

1 cable comes in. All of this is being retrofitted and  
2 replaced as a part of the new bridge.

3 Now, the concerns that are expressed by BCDC  
4 are also our concerns because we want the community to  
5 have a good-looking bridge in the future. And you can  
6 see how beautiful the west side is and we would attempt  
7 to work with you and solicit your help in coming up  
8 with just as interesting a bridge on the east side.

9 Here's another lower shot of the west side.

10 Here's a view that we all don't see very often  
11 It's almost of a dream view of -- a bird's-eye view of  
12 the whole bridge. It just looks so serene and  
13 beautiful.

14 And looking over Treasure Island on towards  
15 the Port of Oakland you can see the -- this slide Brian  
16 Maroney showed you earlier. But this is a close-up  
17 because I'll be using this later on to show you some of  
18 the alternative ideas, conceptual ideas we came up  
19 with.

20 This is a unique view, looking -- we're  
21 looking at the entrance to the tunnel, going from west  
22 to east -- excuse me, from east to west. And it's a  
23 view that we don't see every day. But it certainly  
24 will give you an indication of some of the interesting  
25 design solutions that have to be arrived at in order to

1 connect the new bridge at this point so that the  
2 traffic can go on to the two-level portion beyond the  
3 tunnel.

4 This is a view from the marina at Treasure  
5 Island. And it's a very nice, picturesque shot of the  
6 cantilever section.

7 And, of course, you saw this picture earlier,  
8 looking down at the toll plaza and going on toward  
9 Treasure Island and you can see San Francisco in the  
10 distance.

11 And one more lower shot from Yerba Buena  
12 looking back towards Oakland.

13 Okay, what I'd like to do now is walk you  
14 through the sketches that you saw on the walls. And as  
15 I said to you earlier, in a two-week time frame, you  
16 don't have an awful lot of time to think about detail.  
17 All you think about is concept, how can I get something  
18 to look nice and so forth.

19 One thing I want to point out that might make  
20 a difference, this area here is the deepest so-called  
21 navigable channel. From here on it's basically  
22 non-navigable and the Coast Guard is responsible to  
23 maintain this channel. And we will be working closely  
24 with them.

25 If for any reasons they say that we can lower

1 the bridge at this point in terms of its elevation  
2 above the water, we will certainly work with the Coast  
3 Guard. But almost all the schemes that you see here,  
4 an effort is made to maintain the same clearance that  
5 currently exists in the cantilever section as we have  
6 shown on this rendering.

7           So there's only one scheme, which I'll get to,  
8 and I'll show you why that particular idea came about.  
9 So what this one is is essentially three steel arches,  
10 and the superstructure is a double decker because it  
11 seemed the most logical way to tie into the tunnel  
12 because the tunnel is two-story, just as the bridge on  
13 the west side is two-story.

14           And if you notice, that we thought that it  
15 would be exciting to -- if it was the wishes of the  
16 people in the East Bay or any part of the bay, if they  
17 wanted to get some pedestrians to walk on this bridge,  
18 there would be nice little observation platforms for  
19 people to enjoy the different vistas and we can have  
20 that opportunity if it becomes a reality.

21           And if you're going to dream, you might as  
22 well dream big. Here's some three-cable-stay towers  
23 and you can see this would be a magnificent structure  
24 but may not be a practical one because, again, we were  
25 just dreaming when we came up with these ideas. And so

1 again, we would probably have some access by  
2 pedestrians to enjoy the vistas.

3 MR. SIRACUSA: Every concept considered  
4 navigation?

5 MR. MIRZA: Everyone except this one right here.  
6 One thought was that if the Coast Guard says no, it's  
7 not really necessary to maintain the vertical clearance  
8 at the channel that exists, which is this point right  
9 here. Then one concept was why don't we keep a lower  
10 bridge. Basically at this point, whatever the  
11 elevations are of the tunnel, the bridge rises and from  
12 then on it sort of takes a steady incline toward the  
13 Oakland side.

14 And so this one envisions really two  
15 individual bridges, each one would be a single deck, of  
16 course. And one would have to overlap the other in  
17 order to tie into the two-level structure that goes  
18 into the tunnel.

19 And, of course, being water oriented we  
20 thought it would be kind of neat maybe to have an  
21 observation tower similar to the Seattle Space Needle  
22 where you could have something like that. And if  
23 that's not too practical to reach, well, maybe that  
24 could be put on Treasure Island as part of it's future  
25 development, and may have ferries bringing in tourists

1 and school children and let them go 500 feet up in the  
2 air, let them enjoy the Bay Area.

3 This would be an opportunity to make this  
4 bridge a human bridge, not just only for automobiles.  
5 So from an aesthetics point of view and architectural  
6 point of view we thought it would be nice to make it a  
7 living element instead of strictly for automobiles.

8 Okay, there have been many times questions  
9 posed to us, "Why don't you guys build a suspension  
10 bridge?" And this is an attempt to show that you could  
11 take half of the west side and basically flip it over  
12 and replicate it on the east side. What the problems  
13 recreated with this, if you remember in Brian's  
14 presentation, the bedrock is down about four hundred  
15 feet or so down there.

16 So in order for this cable to work, and I'm  
17 not an engineer, in order for this cable to work and be  
18 anchored down here creates some very major engineering  
19 problems. But anyway, that's what it would look like  
20 if you had a suspension bridge, if it was feasible to  
21 build.

22 This is a kind of a neat design where there  
23 are three arches. And I don't know what material  
24 they're built out of, could be concrete or steel. But  
25 we call this a basket handled arch. What it does, if



1     you were to put your arms or hands around the center of  
2     the arch at the very top, it would be closer at the  
3     middle than at the supports. So we have three basket  
4     handled arches.

5             You can see they gracefully go down to the  
6     water's edge and they're suspended with vertical steel  
7     cables. And what this replicates is an upside-down  
8     shape of the cables on the west side of the bridge. So  
9     there's a repetition of the design form in terms of a  
10    curve which is always a very pleasant shape to look at  
11    and it's restful, and it's attractive. The rest of it  
12    would be a sort of normal concrete viaduct tying into  
13    it and then going on to the tunnel.

14            And, of course, Brian referred to the  
15    alignments of these bridges. These bridges would fit  
16    well in almost any alignment. This particular one we  
17    thought perhaps would work just north of it at this  
18    point in here.

19            This is another steel portion that has two  
20    steel arches, and this again occupies the area that has  
21    the deepest channel for you and is a very simple  
22    rendition of a steel structure and it's a two-story  
23    superstructure going over the top. And cable stays are  
24    in vogue these days.

25            My understanding was that the cable stays were

1 designed by German engineers after the second world war  
2 because the infrastructure was bombed so badly they had  
3 to come up with a quick way to rebuild their bridges.  
4 So of course they don't have water crossing as large as  
5 we have but they had three or four hundred foot wide  
6 rivers and they were able to do this and sometimes with  
7 single towers. And apparently it was a quick solution  
8 to an engineering design.

9 This one is a two-tower and you'll find a  
10 series of these that are quite similar actually. But  
11 this happens to be two towers of a cable stay along  
12 with the rest of the viaduct.

13 This is also a similar one, except this one  
14 concentrates on the fact that pedestrians can use this.  
15 And there's some lookout points on either side of the  
16 towers to kind of create some interest.

17 This particular one takes a different  
18 alignment but, as Brian mentioned to you, you need to  
19 have a straight line for all the cables. These are  
20 called the back stays at this point and those are back  
21 stays. So you need a straight line from the back stay  
22 all the way to back stay. And then from then on you  
23 start a gentle curve to come back.

24 Another reason for this particular alignment  
25 was the fact that these cable-stay bridges are much

1 more interesting to look at when you look at them from  
2 an elevation point of view rather than if you looked at  
3 them from an end. So it was imagined that, as you paid  
4 your toll on the Oakland side, and you began to drive  
5 up on the bridge, you would have a nice little site  
6 elevation of the bridge so that you would have this  
7 nice beautiful bridge to look at, rather than if it was  
8 in a straight line.

9         If you've ever driven over a cable-stay bridge  
10 which I have, I've been on the Sunshine Skyway bridge  
11 in Tampa Bay, you're always driving parallel with the  
12 bridge. So you're not really aware of the cables  
13 because they're beautiful. At night they can be lit up  
14 with lights and they look like a sailing ship in the  
15 distance.

16         So another reason for this wider alignment was  
17 not only to accommodate a longer bridge because of the  
18 length for the cables but also from an aesthetics point  
19 of view to give the vision of beauty as you were  
20 driving up onto the bridge.

21         This is a similar design but just a slight  
22 different variation. I want to point out something  
23 here that I've neglected to do to this point. We've  
24 sort of drawn an elevation of the entire bridge, even  
25 though most of us will never see this elevation. The

1 idea was to let you see the relative scale of the new  
2 towers versus what's over there. I don't know if we  
3 want to necessarily take away from the west side of the  
4 bridge. I think we should do something that's  
5 complimentary that both sides of the bay would be proud  
6 to say, "This is our bridge." And we want this bridge  
7 to reflect the community. And we want the world  
8 tourists to know that this is San Francisco-Oakland Bay  
9 Bridge and it's beautiful.

10 There was even a thought given to a  
11 single-tower cable-stay as Mr. Roberts indicated, this  
12 was about a year ago. And the location of this tower  
13 could be moved in either direction. Of course, the  
14 farther west you go, the more bedrock you land on. So  
15 you have opportunities to get better bearing on it.  
16 But this is the most direct route that there would be  
17 to build this particular bridge. The rest of it would  
18 be pretty much as I described before.

19 This is the same alignment on the south side  
20 of the present bridge with two towers. And from here  
21 on what I'm going to show you are the renderings that  
22 you see on the walls to your left, this again is an  
23 oblique view of the bridge over Treasure Island. This  
24 particular -- these are done by computer and we use  
25 what we call photo retouch, with one computer we draw

1 the elevations and the floor plans of the bridge and  
2 then we draw perspective of it.

3 And then we have another program which is  
4 called photo shot so we take a photograph of this  
5 entire background and then we superimpose the new  
6 perspective on top of the old bridge and then eradicate  
7 on another layer, eradicate the old bridge and this is  
8 what you end up with, voile, it's magic. But anyway,  
9 it works. That would be an exact rendition of what  
10 this bridge would look like in this alignment.

11 Of course, this is what we call the skyway  
12 viaduct in the handout you got today. These spans are  
13 I believe 525 feet or so. But this would be just a  
14 very clean, simple bridge to take care of the needs of  
15 the area.

16 And then if you want something more exciting,  
17 that generates a lot of interest, points up to the  
18 heavens, then you can say okay, maybe the community  
19 would like to have this very interesting looking  
20 bridge. And, of course, this is a double tower and was  
21 described earlier. And of course the rest of the  
22 viaduct is essentially the same. It becomes a  
23 signature bridge. It puts you on the map, that's what  
24 it does.

25 And then we've got some lower-level shots.

1 This is what it looks like from Treasure Island again,  
2 and here it is with a lower view of it. These are the  
3 views that primarily fishermen and people along -- walk  
4 the water's edge and so on in San Francisco might see  
5 in the distance. Of course, the island might be in the  
6 way.

7 And this is a slightly different view of the  
8 towers. Shows you how slender the roadway is, and how  
9 added strength and stability is provided by splitting  
10 the legs to give the stability it needs from the type  
11 of earthquake forces Brian was describing.

12 We also recently worked on a single tower  
13 where it was actually located on the island itself in  
14 terms of bedrock and these spans are considerably  
15 shorter. This is about 800 feet, I believe. And then  
16 the rest of the viaduct were 500-foot spans. And, of  
17 course, the economy and the simplicity of this, this  
18 would be either a poured-in-place segmental or a  
19 precast segmental type of bridge which would have a lot  
20 of rhythm and harmony to a tie back and then go back to  
21 the island.

22 And these are some cross sections, some ideas,  
23 conceptual ideas as to what this particular bridge  
24 would look like. As you can see, this got a very  
25 slight haunch to it which gives it a certain amount



1 of -- it softens the rectangular look of a bridge and  
2 kind of looks much more pleasant to the eye.

3 And some of you may or may not have seen the  
4 models. There's a little table up at the front left of  
5 the room here. By the way, this is a beautiful room,  
6 Mrs. King. Thank you very much for getting it for us.  
7 It has wonderful capabilities and really makes a  
8 presentation nice.

9 This is just kind of an oblique angle of the  
10 same thing done in Styrofoam. You can see the model up  
11 in the front. Here's a side view of it. And here's an  
12 end view. And there was another scheme conceived where  
13 the -- all the bridge was one level instead of double  
14 deck. The last thing was a double decker. This is one  
15 level and there would be a divider in the middle for  
16 the cables to anchor into because such a wide bridge.  
17 I don't know if there's such a wide bridge in the  
18 United States, about 172 feet wide is what the concept  
19 was, so there was actually three sets of cables in this  
20 one. But because the towers were in the middle, we  
21 thought perhaps from an architectural point of view to  
22 support the structural needs of the bridge we needed  
23 more stability. But then, this is only a concept.  
24 There's a lot of work to be done yet on it.

25 Here's a side view of the same. This span I

1 believe is about one thousand four hundred feet. And  
2 here's an end view of the same bridge and you can see  
3 the barrier that I was talking to you, these cables,  
4 they have to be protected somehow and this was just a  
5 quick idea as to how it may look.

6           Okay, that is the end of my presentation.  
7 We're pleased in the aesthetics unit to be able to  
8 participate in these future public hearings. We'll be  
9 more than happy to assist Metropolitan Transportation  
10 Commission, BCDC, and any other group. And we're more  
11 than willing to participate in this process and I want  
12 to thank you for this opportunity.

13           Thank you.

14           MS. KING: Thank you.

15           This is a great room but we need some light  
16 now. Thank you.

17           We now have -- this took a little longer than  
18 we expected but obviously we've been very well briefed.  
19 First, I'll ask the committee if they have any other  
20 business they'd like to take care of before we go to  
21 public comments or any comments you'd like to make.

22           MR. SIRACUSA: Is any design susceptible to  
23 removable barrier?

24           MR. MULLIGAN: Caltrans is a (inaudible). We have  
25 one in Coronado, so it gets into what the function of

1 the project is. The function of the project is to  
2 provide five lanes in each direction as currently  
3 exists and there's no need for removable barrier. If  
4 the project purposed contemplates changing that five  
5 lanes in each direction, some other need, then  
6 removable barrier could be a potential solution for  
7 some other need or product description.

8 MR. HSIEH: I have one question. There were a  
9 number of articles on the street recently talking about  
10 what is the possibility to open up the design proposal  
11 to the private sector. Of course, that means time  
12 element and other things that must be considered. But  
13 I just wonder if that question has been addressed by  
14 Caltrans or BCDC. Perhaps this is the time, before  
15 public testimony, we should have the chance to just  
16 talk about that and make sure that question was  
17 addressed.

18 MR. MULLIGAN: This project is different from a  
19 typical new bridge project. Typical new bridge project  
20 you have deliberate decision-making process where you  
21 wish to satisfy some project scope or public eye and  
22 you have the luxury of time if you choose to take it.

23 In this instance, it's the seismic retrofit  
24 project so it's a race against time. We're not sure an  
25 international design competition is necessary or is

1 appropriate. Certainly California and the Bay Area has  
2 a wealth of design professionals, many of those are  
3 assembled through the day that are on these different  
4 advisory bodies, so Caltrans envisions using these  
5 various advisory bodies to cast judgment on  
6 alternatives as they arise.

7 Caltrans developed some alternatives, received  
8 quite a few in the mail. I suspect we shall consider  
9 to receive more so we will take those alternatives and  
10 discuss those with the various groups that are present  
11 here.

12 With respect to ultimate design of the  
13 project, it is likely that that will be outsourced or  
14 done by staff outside of Caltrans, particularly in  
15 certain areas of expertise where we have not developed  
16 those type of bridges before. But we do not envision  
17 at this point in time opening up an international  
18 design competition we feel disservice to the Bay Area.  
19 More importantly, we feel it would take time we do not  
20 have.

21 MR. HSIEH: I'm not so sure that answered my  
22 question because I just wanted to know if there is a  
23 time constraint that would prevent this possibly  
24 opening up.

25 MS. KING: It sounded like a Caltrans answer of

1 no.

2 MR. MULLIGAN: That's correct.

3 MR. HSIEH: I want to hear yes or no because I  
4 understand that Caltrans has invested two and a half  
5 years time and -- on resources in this particular  
6 project so I fully appreciate that. But I think,  
7 before we go on to the next phase, I think the public  
8 will always have in mind why we don't look for other  
9 possible options in design. And until that is  
10 exhaustive, when we go back to ask the public to put up  
11 more financial support, then we have to deal with at  
12 that time, which will be maybe too late. So I'd like  
13 to think we spend a few minutes, just want to make sure  
14 that question is fully addressed and understood

15 MR. MULLIGAN: We'll consider any designs that are  
16 submitted and we've been receiving quite a few designs  
17 already. I know MTC has received quite a few. We will  
18 consider, though, give our professional judgements and  
19 then go with MTC review board, design review, the  
20 advisory board with respect to what our differences are  
21 and solicit their feedback. We envision those groups  
22 making recommendations to the MTC task force as it  
23 pertains to those.

24 MR. HSIEH: I welcome that. I think this may be  
25 one of the best things I have heard that Caltrans does



1 consider anything from, say, private sector will be  
2 reasonable consideration -- will receive reasonable  
3 consideration. Can we make that as a formal setting?  
4 In other words, few people know about Caltrans is  
5 willing to consider that. But a lot of people say,  
6 "Hey, we don't want to waste a lot of time if Caltrans  
7 does not want to." So perhaps we should make a  
8 statement by either this task force or Caltrans to  
9 advise the public that the door is open.

10 MS. KING: What I would like to see, I don't know  
11 if the door is open, I'm going to hear from Mr.  
12 Siracusa, is that this task force meet in a discussion  
13 with staff and Caltrans to establish what our policy  
14 position is on that issue. And once we've established  
15 that, whether you're the majority or minority, based  
16 upon how people feel versus speed and safety versus  
17 aesthetics, which all are to be considered and then  
18 there are some priorities, maybe we can then come  
19 forward with our public statement.

20 Would that be all right, Mr. Hsieh?

21 MR. SIRACUSA: Well, obviously we want to do the  
22 best we can. But I'm assuming Mother Nature is setting  
23 time. We've got a seismically unsatisfactory bridge  
24 right now and we can't take the chance of letting that  
25 go too much longer. And therefore, I think that our



1 responsibility to the Bay Area is to do -- move as  
2 quickly as we can and obviously hopefully with the best  
3 design we can. If opening this up to a design  
4 competition elongates the process, I would be opposed  
5 to that.

6 MR. HSIEH: I don't think I'm advocating design  
7 competition. What I'm saying, the action taken by  
8 Caltrans at this point and their accepting other  
9 reviews into their department, perhaps that is not  
10 known to the public, maybe this is a small window of  
11 opportunity, allows some of these ideas to come  
12 through. It's not an open design competition per se.  
13 We made the process to get the community involved.

14 MR. ROBERTS: I think I can speak for the director  
15 and then you can make whatever you would like. The  
16 very fact we've put together a panel of international  
17 experts, the very fact that we're meeting here in this  
18 public forum and the very fact we're going to have  
19 several other public meetings I think is an indication  
20 that we're willing to accept any kind of ideas.  
21 Certainly there's structural considerations that are  
22 important. But as we mentioned, that's paramount and  
23 aesthetics is probably a secondary factor in this whole  
24 process. So I think we're open to anything we're  
25 demonstrating here. We put our architects to work on

1 this and we'll get a lot of these kinds of ideas from  
2 other people. But you need some experts who built  
3 these bridges and there are some here in the audience  
4 that we've selected.

5 MS. KING: We appreciate that. I think if that  
6 clarifies it, I agree with Commissioner Siracusa this  
7 task force's job will be to keep this on track while we  
8 get as much public input as possible but not having a  
9 15-day discussion while the bridge falls down.

10 We have some public comment, we do need to  
11 catch a boat. So I would ask you, as you come forward,  
12 because you're on the record, to please state your name  
13 and to keep your comments as brief as possible. If  
14 they go at this point beyond two and a half minutes, I  
15 will be signaling you.

16 Timothy Lane.

17 MR. LANE: Yes, hello everybody. I'm an ocean  
18 engineer, and I haven't seen any of these schemes come  
19 up with a floating bridge concept. And from what I've  
20 seen about the mud underneath the water, it's going to  
21 be a big expense to put in new piers.

22 And if you were to build a floating structure  
23 and then take it up to the cantilever area similar to  
24 what San Mateo bridge looks like, that this would be  
25 extensive cost saving over what's been proposed because

1       they are all standard concepts that work over land  
2       bridges, whatever.

3               And I think that it should be looked at. And  
4       manufacturing it can be done in Hunter's Point area,  
5       we've got a shipyard there. It's cheaper to  
6       manufacture in a shipyard and then float it out  
7       on-site.

8               There's a tremendous cost savings and I think  
9       it's something that should be looked at. And it's also  
10      better for the environment because it can be maintained  
11      in sections, removed in sections, taken back to the  
12      shipyard to be maintained and it's just a better idea  
13      overall from my experience with the bay itself.

14              MS. KING: Thank you. If you'd like to submit  
15      something in writing to us, we would appreciate that.

16              Hassan Astaneh.

17              MR. ASTANEH: Hello, I'm a professor at U.C.  
18      Berkeley in structural engineering. My comment was  
19      with regard to what we see in the newspapers and  
20      publicized concepts. I felt that most of these  
21      concepts are publicized for cable-stay bridge, consider  
22      total reinforced concrete structure. You might say  
23      that at this stage we are looking at concept and later  
24      we'll look at more detailed material use, what is going  
25      to be used. But in bridges of this magnitude, really

1 material and initial structural safety and seismic  
2 issues govern the aesthetic concept.

3           What I wanted to say is that we need to also  
4 look at some major steel bridges, these are cable-stay  
5 bridges built in Japan primarily. The most  
6 spectacular, longest span in the world, the most  
7 crowded bridge, these are all in Japan, they went  
8 through (inaudible) in very excellent form and we need  
9 to consider these issues right now before we go too  
10 much into architecture of it. And we have no way back  
11 to look at other options. So my comment is let's just  
12 also consider some cable-stay bridges that are totally  
13 steel.

14           Thank you.

15           MS. KING: Michael Cameron, Russ Hancock?

16           MR. CAMERON: Thank you. My name is Michael  
17 Cameron, with the Environment Defense Fund, here with  
18 Russ Hancock of the Bay Area Counsel. And we're here  
19 to hope that you all envision a bridge that doesn't  
20 have severe traffic congestion. Which is one of the  
21 biggest problems that this bridge has in addition to  
22 seismic safety.

23           And specifically, we're here to encourage you  
24 to consider recommending, as part of your final  
25 recommendation, a variable toll structure may seem out

1 of your purview but if we're talking about the  
2 reliability of this bridge, there is a solution at hand  
3 for reducing congestion and air pollution.

4 So we urge you to at least consider as part of  
5 your range of options the toll structure for the  
6 operation of the bridge and would be glad to provide  
7 you with detail. We've been working for several years  
8 with a coalition of government business and  
9 environmental organizations, so just if you would  
10 consider that.

11 Thank you.

12 MS. KING: Yes.

13 MR. HANCOCK: I'll simply add my concern and  
14 stress this is in fact a structure we can use easily  
15 and that we're not strangling in our own congestion.  
16 We hope you will make it a part.

17 MS. KING: The suggestions you have we'd like in  
18 writing.

19 MR. CAMERON: We will do that.

20 MS. KING: James Ream. And behind Mr. Ream, Neal  
21 Johnson.

22 MR. REAM: My name is James Ream. I'm an  
23 architect. I'm a fellow of the American Institution of  
24 Architects for design and have been concerned with  
25 design issues all my professional life.

1           I'd like to introduce one additional element  
2 to the design questions that's been in the public press  
3 so far. There seems to have been an equation in the  
4 public press that the design issue is either between  
5 good design of cable-stay and the suspension on the one  
6 hand versus poor design or lack of the design for the  
7 viaduct structures.

8           One of the problems I feel in going to a  
9 twin-tower cable-stay system here is seeing that as  
10 part of the same aesthetic environment as the great  
11 suspension spans of the western section of the bridge.

12           There is an example in Japan, the great system  
13 of (inaudible) bridges in Japan, which combine  
14 cable-stay and suspension spans. And in my own  
15 experience, when you see these together there is a kind  
16 of conflict, a lack of unity that takes place when you  
17 see these different types of suspensions. As if the  
18 designer hadn't quite made up his mind which would be  
19 the best system.

20           And on the other hand, one of the best bridges  
21 in my experience is the (inaudible) bridge in Florence.  
22 It's a bridge, arched bridge going across the river.  
23 It had a great designer, his name was Michael Angelo.  
24 When the bridge was destroyed by the Germans on their  
25 retreat during World War II the Florentines were so in

1 love with this bridge they built it up exactly as it  
2 was before from the same quarry.

3 So I would urge the consideration of having  
4 great engineers do a great bridge which does not take  
5 major structure above the roadway level. There are  
6 many examples in the world of fine bridges that do  
7 that. I feel that to take this other route is a little  
8 bit like having two operas going on at the same time.  
9 (Inaudible) on one side, Carmen on the other. They  
10 both might be beautiful but in conflict with each  
11 other.

12 As a procedure, I would suggest taking four or  
13 five months, not a lot of time, but getting a group of  
14 the best engineers in the world to submit individual  
15 proposals for their designs to include in the great  
16 discourse you're having on these bridges and give them  
17 something for their time but see the great designers  
18 come up with their best ideas for bridges but set a  
19 criteria for that competition saying, "Give us your  
20 best design for a bridge which keeps all structure  
21 below the roadway."

22 MS. KING: Thank you.

23 Neal Johnson. Following Mr. Johnson, Jim  
24 Blythe.

25 MR. JOHNSON: I am a transportation advocate and I



1     like Scheme J which is the double-deck cable-stay  
2     bridge. I would like to see it, though, at the curve  
3     become a single deck and come down to the toll plaza as  
4     two single-deck bridges.

5             I'm concerned about the interchange on Yerba  
6     Buena Island. I see having a double deck coming  
7     straight out of the tunnel, an opportunity to build a  
8     very nice safety interchange there and get rid of the  
9     existing interchange on the west side as well as the  
10    east side. I have a diagram of what that might look  
11    like. I believe that a ten-shoulder (inaudible),  
12    four-shoulder is fine.

13            I think the bike lane is -- the cost benefit  
14    is not good. The model in the back is the cable-stay  
15    of the double deck which I think is the most  
16    aesthetically pleasing, and I'll give you these  
17    diagrams.

18            MS. KING: Yes.

19            Jim Blythe?

20            MR. BLYTHE: Hi, I'm Jim Blythe, the assistant  
21    general manager at AC Transit here today to speak in  
22    support of comments made by several members of the task  
23    force regarding the inclusion of the transbay terminal  
24    as part of this bridge deliberation.

25            As you know, the transbay terminal was built

1 and has operated historically as an integral part of  
2 the bridge. Any replacement and reconstruction of this  
3 bridge must take into account the fate in the future of  
4 that terminal as a critical component for congestion  
5 management of the traffic flowing over the bridge.

6 And we're happy at AC Transit to work with the  
7 task force in providing any resources or information  
8 that you might need in your deliberations regarding the  
9 transbay terminal.

10 Thanks.

11 MS. KING: Thank you.

12 John Ciccarelli. Following Mr. Ciccarelli,  
13 Alex Zuckermann.

14 MR. CICCARELLI: Good afternoon. I'm John  
15 Ciccarelli, speaking as a regional bike advocate.  
16 Professionally I'm bicycle program manager of Stanford  
17 University. I'm a cyclist and a motorist and I'd like  
18 to urge you to include bridge access to bicycles in the  
19 form of a path, possibly an enclosed path.

20 I think bikes have three things to lend  
21 themselves to the project. The first it's an  
22 alternative commuting mode that is growing in  
23 popularity. MTC, through its wise leadership, has led  
24 the growth of bikes on transit and we're seeing an  
25 increase in the use of the bike as an alternative to

1 the motor vehicle. It's not an either/or thing. I'm a  
2 motorist some days, bicyclist other days. The bridge  
3 should support bicycle commuting.

4 Also we have two great assets in the Bay Area.  
5 Our fabulous weather, fabulous views and I think we  
6 have the opportunity to create another high-profile  
7 recreational destination both for day tourist and  
8 world-wide visitors to the Bay Area if bicycle and  
9 pedestrian access are provided on the new span. And I  
10 encourage you to do so. Bicycles are part of the main  
11 course, not the chocolate fudge.

12 Thank you.

13 MR. SIRACUSA: May I ask a question? What do you  
14 do with the bicyclist when he gets to Yerba Buena  
15 Island?

16 MR. CICCARELLI: I think one of the reasons  
17 Caltrans is looking at replacing this span rather than  
18 retrofitting the span is because they're taking the  
19 long view. The short view is fix it, patch it, make it  
20 work. The long view encompasses a hundred years from  
21 now, the design lifetime of the bridge could use all  
22 sorts of changes on the island, there could be  
23 residences there, intensified as a tourist.

24 Bicycle access across the new span now will  
25 support that. And when the west span of the bridge is

1 retrofitted, we can push forward with a full commute  
2 route.

3 MR. SIRACUSA: Thank you.

4 MR. CICCARELLI: Thank you.

5 MS. KING: So you're saying that the state should  
6 pay for it, though, since you don't consider part --

7 MR. CICCARELLI: I made no such statement.

8 MS. KING: The chocolate sauce is what we're  
9 willing to pay?

10 MR. CICCARELLI: I think it should be put to the  
11 Bay Area for the question.

12 MS. KING: Alex Zuckermann.

13 MR. ZUCKERMANN: My name is Alex Zuckermann. I'm  
14 the chair of the Regional Bicycle Advisory Committee.  
15 We also have a committee that specifically deals with  
16 the bay bridge bicycle access. We're more or less all  
17 in agreement that bicycle access is important. I'd  
18 liken it to regional planning that was done or national  
19 planning when they established Yosemite, when they  
20 established the East Bay regional parks. These were  
21 difficult decisions, but they are decisions that are  
22 beneficial to future generations.

23 Our view is that bicycle access is important.  
24 There are three ways to do it. One is on the roadway  
25 and the shoulder, which we do not advocate, it's the

1 cheapest by far but Caltrans does not -- is not in  
2 favor of that.

3 The second way is to extend the roadway and  
4 have a separated bike path like they have on the  
5 Dumbarton bridge, 12-foot wide bike path.

6 The third, which is by far the most cost  
7 effective, is cantilevered section. The estimates  
8 we've gotten, I won't name it, but they are more or  
9 less than half as expensive as the ones that were made  
10 by Caltrans.

11 We also think that we should consider access  
12 on the entire span from Oakland to San Francisco. As a  
13 matter of fact, the bridge is probably not going to  
14 start construction until the year 2,000. However, the  
15 retrofit of the western span is going to start in the  
16 fall of this year. So we don't -- we'd like to get the  
17 best read together like Professor T.Y. Lin and Chuck  
18 Seim and so on, to examine possibilities of such a  
19 cantilevered bridge. And we would ask for that -- this  
20 committee support us in this request.

21 Thank you.

22 MS. KING: Thank you for your written letter,  
23 we've passed it out.

24 Dave McMahon, followed by Michelle DeRobertis.

25 MR. McMAHON: Most of my questions have been

1 answered.

2 MS. KING: Good.

3 Michelle? Following Michelle is Jeffrey  
4 Heller.

5 MS. DeROBERTIS: Hello. My name is Michele  
6 DeRobertis. (Inaudible) I'm a civil engineer and  
7 traffic engineer, I took CE 103 from Professor  
8 (inaudible). I just had to say that. I'll never  
9 forget it.

10 But I'm here as an AC Transit transbay  
11 passenger as well as a transportation professional and  
12 I would like to encourage you to take advantage of this  
13 historic opportunity to improve transit service across  
14 the bay. I'd like to be visionary and I'd like see  
15 light rail service restored on the bridge. We should  
16 acknowledge that (inaudible) was a mistake and take the  
17 first step to restart transit service like we had under  
18 the key route system and put rail back on the bridge.

19 Thank you very much.

20 MS. KING: Thank you.

21 Jeffrey Heller, followed by Karen Gatten.

22 MR. HELLER: My name is Jeffrey Heller and I speak  
23 to you today in part for SPUR and in concert with the  
24 speaking effort that you'll hear probably from the AIA.  
25 The more one travels, for those of us lucky enough to

1 live in the Bay Area, around the rest of the world, I  
2 think the happier we are to come home. And the Bay  
3 Area is a special place in the world, it is a place  
4 that is to the rest of the world known for its bay and  
5 symbolically by its bridges. And the bridges not only  
6 lend to the image but bring tourism and other forms of  
7 world energy here to this place. And I think that this  
8 new structure must certainly respect that fact.

9 The other thing that is important, of course,  
10 is that this bridge will be built at the beginning of a  
11 new millennium. As a prior speaker said, it will be  
12 here for perhaps a hundred years, perhaps longer. And  
13 so what the bridge is, the functions it serves must be  
14 forward looking in terms of its uses and that includes  
15 alternative means of transportation, bicycles included,  
16 and other opportunities that may present themselves in  
17 the future.

18 So I think what we do is we support the idea  
19 of an excellent process, excellent design for this new  
20 bridge. This bridge really should be at the end of the  
21 day transcendental in nature in its form in both design  
22 and function, recognizing, of course, the great forces  
23 of the earthquake as those of us design professionals  
24 do who work on essential service projects and the  
25 things we must do to make them earthquake resistant and



1       survivable.

2               And the bridge that comes to mind for me when  
3       I think of it is the fourth bridge in Edinboro which  
4       transformed a concept of bridges both in exit and in  
5       design and in structure in its time and hopefully this  
6       bridge does the same. So we strongly support the  
7       effort here today.

8               MS. KING: Karen Gatten? Followed by Arthur  
9       Feinstein.

10              Arthur Feinstein? We have a boat to catch.  
11       You're all welcome to join us on the boat.

12              MR. FEINSTEIN: Hi, I'm Arthur Feinstein,  
13       executive director of the San Francisco Audabon  
14       Society. And why we share all our concerns about  
15       seismic safety and (inaudible) we hopefully share our  
16       concerns and most worldly resources in the bay, also  
17       this bridge has the opportunity either to seriously  
18       impact them or to actually improve them.

19              I think, from what I've read, that in terms of  
20       the toxic situation this might actually be an  
21       improvement with a new bridge. But there are some real  
22       concerns that we have about the alignment, the  
23       Emeryville crescent end at the toll plaza we have a  
24       very rich Marsh, has the most bird life resources in  
25       the central bay on the mud flats. And looking at the

1 alignments of -- some of the alignments, looks like it  
2 will go through some of those mud flats.

3 This is where the shore birds and ducks feed.  
4 So we urge you to look at the topography there, seek to  
5 avoid as much impact on mud flats as possible,  
6 mitigation of those impacts.

7 There's also -- I assume that you'll  
8 completely miss the wetlands that are there where the  
9 endangered California Copper Rail resides but also the  
10 question of new structures there, are you interfering  
11 with the hydrology of that area, is that going to  
12 impact the marshes at all? These systems simply have  
13 to be looked at in the future and I urge you to  
14 consider them.

15 Finally, under the bridge, and has been in the  
16 paper recently, I believe, the Double Crested Cormit  
17 which has bird nests under the Bay Bridge. There are  
18 200 nests there. This is a bird that is listed as a  
19 declining species, species of special concern under the  
20 Fish and Game. And we're asking that you consider  
21 providing nesting habitat for this bird under the new  
22 bridge.

23 The bird was declining, it's a very sensitive  
24 species. We've interfered with its breeding in other  
25 areas. The bridge provides a place people are not.

1 While the new design, if it's concrete, may not have  
2 any girders underneath, I hope you will be willing to  
3 provide nonstructural opportunities, hopefully very  
4 inexpensive ones, for these birds to continue nesting  
5 and co-existing with us in the Bay Area.

6 Thank you very much.

7 MS. KING: Thank you very much.

8 Robert Pratt?

9 Bill Smith?

10 MR. SMITH: I'm Bill Smith, executive director of  
11 Virtual Agile Manufacturing. Could you read back the  
12 three statements that I have and I'll fill in  
13 statistics?

14 MS. KING: One says over a hundred years.

15 MR. SMITH: Over a hundred years of life, what  
16 else does it say there? Earthquake?

17 MS. KING: It says that comes last, says  
18 accommodate throughout, whatever that means.

19 MR. SMITH: You want to hold on a second? You  
20 want to accommodate throughout --

21 MS. KING: You have two minutes.

22 MR. SMITH: In 100 years. That's the first thing  
23 ever I submit another card and put in (inaudible) of  
24 Virtual Agile Manufacturing. Mary King, are you going  
25 to be able to ride your bicycle up that grade? You're

1 the market for the electric vehicles starting out.

2 MS. KING: You're almost finished now.

3 MR. SMITH: The spine in the bridge that T.Y. Lin  
4 had come up with is 15 by 30 feet. Mary? The spine in  
5 the bridge that T.Y. Lin had come up with an open hole  
6 that goes through the tower. And it is 15 by 30 feet.  
7 And we want to utilize our space as much as we can.

8 If we have a dozen different electric  
9 technologies we can put on there, I had been in the  
10 last meeting on transportation where Quentin Kopp was  
11 considering the financial of this and, as a matter of  
12 fact, I crashed into another gentleman when I was  
13 getting up to speak because he thought it was his turn.  
14 As long as it was still my turn, what I suggested to  
15 Quentin, he suggested I sell to somebody else. What I  
16 realized to some statisticians, I can scope this, a  
17 hundred thousand people per lane on the existing bridge  
18 with a magnetic coupling which is a program at Berkeley  
19 in which is Caltrans' money, if we can do this  
20 regionally here with our MTC and have a public  
21 (inaudible) like they have in Santa Clara County, where  
22 they have the engineers that are the local people doing  
23 the work with the local money, you can have all the  
24 bells and whistles and you can add all these  
25 technologies.

1           Now, the last thing I have there was  
2 earthquake. And if you have a Number 9 earthquake off  
3 the coast of Oregon, it happens every 400 years. Who's  
4 to say it's going to happen within this hundred years?  
5 But there's a span of a couple hundred years in  
6 between. 200 to 600 years, every 400 years on the  
7 average, to have this earthquake, as I understand. How  
8 anything in Oregon, how big will it be here?

9           Lastly, with the materials design to last a  
10 hundred years, if you put solar energy on the outside  
11 of the bridge, film, then you could have, and I have  
12 sealer, I'm out of the 60's in my philosophy, the  
13 bottom line here, if you take the solar materials, you  
14 could power all these electric vehicles on the bridge.

15       MS. KING: Thank you very much. If you submit  
16 your ideas, we'll give it to Bill Lockyer.

17       Steven Winkler?

18       MR. WINKLER: Now for something completely  
19 different. My name is Steven Winkler, architect and a  
20 civil engineer, I'm here representing the American  
21 Institute of Architects and indirectly the Structural  
22 Engineers Association of Northern California. We had a  
23 meeting last week at the San Francisco AIA office and  
24 basically would like to place ourselves at the disposal  
25 of this group in any capacity we can be of assistance.

1           There's several ideas we're very encouraged by  
2   the openness that's been discussed by Caltrans. I  
3   think your question Commissioner Hsieh asked about  
4   private/public is an issue to be decided. But one of  
5   the things, enormous opportunities here that shouldn't  
6   be missed, and there are numerous historical examples  
7   which provide and prove a well-designed bridge is not  
8   necessarily the most costly bridge, aesthetics and  
9   economics, particularly in bridge design, are very  
10  tightly intertwined. And there's no automatic concept  
11  that a beautiful bridge is more costly. It isn't cake  
12  decoration, it's basically doing structure and  
13  aesthetics as one integrated whole.

14           One of the discussions that was talked about  
15  is whether to have a design competition. If there's a  
16  decision that the design competition is going to take  
17  too much time and that the competition time relative to  
18  the hundred-year life span of the bridge is a tiny  
19  increment but the other comment, as Commissioner  
20  Siracusa raised, is the issue of when and where the  
21  next major earthquake is going to happen. So that on  
22  the life expectancy of the bridge there's no hurry at  
23  all of a design competition but waiting for the next  
24  earthquake we're in a great deal of hurry so we have  
25  the bridge in place before it happens. We're playing

1 with the odds in both cases.

2 But basically, if a competition can't be held  
3 and one of the things we discussed as a possibility is  
4 a blue ribbon panel which is already the kind of  
5 discussion that's happening here, we already have what  
6 in essence is an international blue ribbon panel  
7 sitting here. I'm in awe of the people doing this.  
8 But there may be other people internationally or other  
9 parts of the country, locally here, members of the  
10 American Institute of Architects or the structural  
11 engineers who would be willing and able to provide  
12 additional input to this group and we stand ready to do  
13 that.

14 The bay is a unique, natural area and  
15 basically what we're saying is that a world class  
16 location deserves a world class bridge. We can set up  
17 a process which is what we're talking about right now,  
18 talking about design is premature. We need to be  
19 talking about the design process that will generate an  
20 aesthetically pleasing, environmentally responsible and  
21 an economically viable bridge. And we're here to help.

22 MS. KING: Thank you. Thank you for your letter.

23 Jon Poschman, followed by Angus McDonald.

24 MR. POSCHMAN: Hi, my name is Jon Poschman and I'm  
25 the west bay coordinator for the bike-the-bridge



1 coalition. Bike-the-bridge coalition favors a  
2 full-length bike path all the way across the Bay Bridge  
3 from shore to shore. We feel that this should be part  
4 of the design planning process. Studies should be done  
5 where this is included in it. A halfway bike path  
6 doesn't cut it for us in San Francisco. We can't get  
7 across the bay on that. We'd like to see the one go  
8 from -- all the way from San Francisco to Oakland.

9 And I hope that the people on this committee,  
10 the task force, makes sure that it's included in their  
11 recommendation that they make to Caltrans and the other  
12 agencies. So make sure that it's part of the main  
13 project, and make sure that it's not something which is  
14 left out.

15 Thank you very much.

16 MR. SIRACUSA: Can I ask a question? Would the  
17 bikers be willing to pay tolls for the bike lane on the  
18 bridge?

19 MR. POSCHMAN: We can explore that in the planning  
20 process. So that if it's included in the process, then  
21 that could be discussed and it could be brought up.  
22 Right now that idea is -- could be considered, too. So  
23 to say yes or no, whether they would do that, I think  
24 first we have to look into the process. But I'd say  
25 it's entirely feasible, yes.

1 MS. KING: Thank you.

2 Angus McDonald.

3 MR. McDONALD: My name is Angus McDonald from  
4 Alameda. I'm an engineering physicist, and I come  
5 before you because it seems to me that it would be  
6 better if we kept the old bridge and retrofitted it to  
7 a level to maintain it operable, but not to have it  
8 fall down because it seems like it's going to cost us  
9 money to take it down and it has another 40 years of  
10 useful life sitting there.

11 If we built another bridge like the flat one,  
12 parallel to it, then we would achieve a considerable  
13 increase in capacity and the bridge is one of the most  
14 overloaded spans in the area.

15 On the other side, the San Francisco side,  
16 there's a freeway that simply ends, knocked down a bit  
17 of it recently. If that were connected to Yerba Buena  
18 with a similar span to the span that presently exists,  
19 the suspension span, then we could have a high-capacity  
20 bridge. And I for one would be quite willing to pay  
21 substantial bridge tolls if I thought I was getting a  
22 substantial result like a bridge, new bridges that  
23 would take the traffic that is trying to get across  
24 them.

25 And the advantage of connecting to that

1 freeway in San Francisco is it doesn't dump the traffic  
2 downtown. They can't get off until Army Street so I  
3 would like you to think of this. And also, if we built  
4 a new bridge, we could build it for cars only and  
5 refuse to take busses and trucks on it. This allows us  
6 to build a bridge of lighter materials which would save  
7 money and we could perhaps use something like carbon  
8 fiber for our new bridge which would make it a real  
9 engineering wonder for the whole world to look at.

10 Thank you.

11 MS. KING: Thank you. We're going to adjourn this  
12 meeting.

13 (Whereupon, the proceedings ended at 3:30  
14 p.m.)

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REPORTER'S CERTIFICATE

I, CINDY TUGAW, CSR No. 4805, Certified  
Shorthand Reporter, certify;

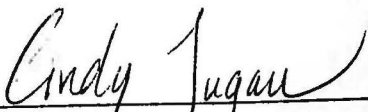
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before me at the time and place therein set forth;

That the foregoing is a true and correct  
transcript of my shorthand notes so taken.

I further certify that I am not a relative or  
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I declare under penalty of perjury under the  
laws of California that the foregoing is true and  
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Dated this 31st day of March, 1997.

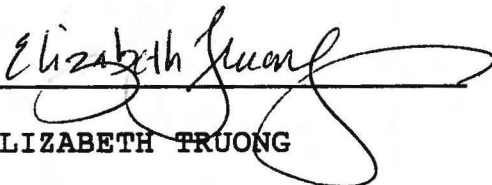
  
CINDY TUGAW, C.S.R. 4805

1 **REPORTER'S CERTIFICATION OF CERTIFIED COPY**

2  
3  
4  
5 I, Elizabeth Truong, an employee of Atkinson-  
6 Baker, Inc., certify that the foregoing pages 1 through  
7 78 constitute a true and correct copy of the original  
8 transcript of the meeting held on March 18<sup>th</sup>,  
9 1997, regarding Bay Bridge Design Task Force.

10  
11 I declare under penalty of perjury under the  
12 laws of the State of California that the foregoing is true  
13 and correct.

14  
15 Dated this 31<sup>st</sup> day of March, 1997.

16  
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18  
19   
20 ELIZABETH TRUONG  
21  
22  
23  
24  
25

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# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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2. Tess Kouyate	CH2M HILL	1111 Broadway, Ste 1200 code 94607 510 251-2888 ext. 2208
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6. James Reem		3385 Clay St SF 94118
7. FRIEDER SEIBLER UC San Diego	<del>SAB + PRP</del> <del>UC SAN DIEGO</del>	La Jolla Ca. 92093-0085
8. I. M. IDRIS UC at Davis	SAB, + PRP	
9. JOSEPH NICOLETTI	SAB + ECRB	
10. Joseph Penzen	SAB	1995 Univ. Ave. Suite 119 Berkeley, CA 94720



# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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4. THOMAS G. LOWETT	URS Greiner	Tampa, Florida
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6. Jim Gleich	AC Transit	Oakland.
7. Jacques Keller	BCDC	111 New Montgomery San Francisco
8. Duncan Jones	Korue Engineering	155 Grand Ave. #400 Oakland 94612
9. John Ciccarelli	Santa Clara County Bicycle Advisory Committee	982-5 Alpine Terrace Sunnyvale CA 94086-2457
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# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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3. FF Zimmerman	Woodward-Clyde	500 12th St Oakland, CA 94607
4. B.H. Martin	"	"
5. CLIFFORD W. SAMPSON		POST OFFICE BOX 70 WALTON CREEK, CA. 94597
6. T.Y. Lin		Liew Tung Yen China
7. BILL KLONIG		FHWA
8. Dick Le Beau	Imbison & Assoc	<sup>Sacramento</sup> Imbison & Assoc
9. JASON M. THOMPSON	BCDC/ECRB	BCDC
10. STEVEN WINKEL	AMERICAN INSTITUTE OF ARCHITECTS	2474th, #110 OAKLAND, 94607

# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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2. Colleen Cooney	BCDC	
3. Bita Amirjani Michael Cameron	BCDC EDF	
4. MEG KREHBIEL	EDF	
5. Robert Bittner	Ben C. Gerwick, Inc.	
6. Karen Mitchell	Supr. De Saunier	
7. Thomas D. Wosser	BCDC ECRB	
8. STEVE THOMPSON	BCDC DRB	
9. Jerry O'Imes	USCG	Commander (POW-2) Bldg 50-6 Coast Guard Is. Alameda CA 94501-5100
10. ROLAND NIMIS	FHWA	201 Mission #2100 SF. 94105



# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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2. Mike Davis	PBQD	303 2nd St SF, CA
3. Kory ALWILSON Scott Steinwert	PUBLIC AFFAIRS INST. Public Affairs Mgmt.	101 THE Embarcadero Suite 210 SF CA 94105
4. FERDINAND DEL ROSARIO	ALAMEDA COUNTY PWA	399 ELmhurst St. Hayward CA
5. Marina Carlen	Office of Mayor Harris	one city Hall Plaza
6. Terry McKeon	OK	1800 Broadway, Oak
7. Robert Settle	AGS, Inc.	1800 Broadway, Oak
8. Dennis Fay	Alameda Co. CMA	1337 Broadway #220 Oakland
9. CRISTINA FERRAZ	CALTRANS	840 Brannan St SF, CA 94115
10. ANGUS MACDONALD	SELF	3335 FERNside ALAMEDA CA 94501

# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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2. Jeffrey Heller	SPOR AIA	221 MAIN ST
		SUITE 540 SF CA 94105
3. Reinhard Ludke	C+D Bridge Engineers	170 Columbus Ave 240
Karen Jatta	Solutions 2000	SP, CA 94133
4. P.O. Box 471777, SF. CA 94147		
Chm. Amitt	ECRB	PO BOX 51950 Palo Alto CA 94302
5. Arthur Feinstein	GGAS (Audubon)	2530 San Pablo St Berkeley CA 94702
6. Bill Smith	Virtual Agile Manufacturing	94108
Exec Dir.	9 Commodore Dr #306 Emeryville	
7. Jeffrey Jensen	BCDC	30 Van Ness Ave, Ste 2011 SF. CA
3. John Newton	Private	3816 B Glen Park Oakland
D. Anderson	URS Greiner	916 75th 3700 Oakland
1. Terry Roberts	Oakland	1333 Broadway Oak
0. Elsa Ortiz Castaneda	Sed. Lockyer	



# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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1. Frank Turpin <del>William</del>	Bechtel	San Francisco
2. William Wilkes NAW WAREW	MCAC (MIC) EDAW	OAKLAND S.F.
3. Robert Pratt Tom Cooper	CA Bike Advocates PPD	5839 AYALA AVE Oakland 94609 PH 658 San Francisco 4268
4. Sergey Treysa A. K. K...	HMTB SCS	Druid Santa Clara
5. WILLIAM HADAYA ALEX ZUCKERMAN	PARSONS BRINCKERHOFF REDAC Regional Bicycle Advisory Committee	S.F. Oakland 510-452-1221
6. Russell Hamrick	Bay Area Council	200 Pine Street San Francisco 94104
7.		
8.		
9.		
10.		



# PRESS

## Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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1. Carl Nolte	SE CHRONICLE	901 MISSION ST 94103
2. Maria La Ganga	LA Times	388 Market St # 1550 SF, CA 94111
3. Robert Oakes	CC Times	
4. Paul Jeschke	KGO-TV	900 Front St. S.F.
5. GREG LYON STAN DRURY	KZOB-TV " "	1001 Novak St SF
6. GABE MCDONALD Peggy Stunnett	MONTCLARION Tribune	
7. Monica Xu Frances Dunkel	World Journal SJ Mercury News	
8. Travis Baurman / Maria Zamora STEPHANIE UICIC	fox News	233 Hegenberger Rd Ste 2 Oakland Ca
9. Bob McCann	Contra Costa FA	1340 Treat Blvd St. ISO, WC 94596
10. Alan Tempko Greg Edmonds	Chronicle KGO RADIO	900 Front. S.F.

PRESS

# Bay Bridge Design Task Force

March 18, 1997

1:00 p.m.

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1. <u>Kevin Gethings</u>	<u>KPIX</u>	<u>900 BASTREY</u>
<u>Bob Melnow</u>	<u>KCBS Radio</u>	<u>1400 L. Cerran</u>
2. <u>Bill Schenker</u>	<u>KATV</u>	<u>555 BASTREY</u>
3. <u>Emelyn Cruz Lat</u>	<u>Examiner</u>	<u>110 Fifth St.</u>
<u>Susan Pollard</u>	<u>Contract Time</u>	<u>2640 Shadelands</u>
4. <u>Jeff Shuttleworth</u>	<u>Bay City News Service</u>	<u>W.C. 94586 Dr</u>
		<u>1221 Oak St, Room 322</u>
		<u>Oakland, CA 94612</u>
5.		
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8.		
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# REGIONAL BICYCLE ADVISORY COMMITTEE

of the San Francisco Bay Area (REBAC)

PO Box 10205 • Oakland, CA 94610

510-452-1221

March 18, 1997

Mary King, Chairperson  
Bay Bridge Design Task Force  
Metropolitan Transportation Commission  
101 Eighth Street  
Oakland, CA 94607

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VACANT  
Napa County  
BOB GEFFORD  
BILL DURN  
San Francisco County  
WALTER LEHLE  
DAVE SNYDER  
San Mateo County  
JOHN LAMOSIN  
MIKE HARDING  
Santa Clara County  
BILL BLISS  
GEORGE GODLEWSKI  
Solano County  
JOE BREWSTER  
MICK WEININGER  
Sonoma County  
PHILIP BOYLE  
LOU SALZ

Regional Representatives  
ELLEN FLETCHER

## EX-OFFICIO

California Association of  
Bicycling Organizations  
BILL BLISS  
League of American Wheelmen  
ELLEN FLETCHER  
Sierra Club  
VACANT

We are very pleased that your task force is supporting the construction of a new Bay Bridge between Oakland and Yerba Buena Island. We are also pleased that there appears to be a ground swell of support for including bicycles in the new bridge design.

We strongly support bicycle access on this new bridge. However, we also believe that access between Oakland and San Francisco is just as important. This would certainly be in harmony with MTC's goal of a balanced transportation system. The bicycle community, composed of REBAC (the Regional Bicycle Advisory Committee), the Bay Bridge Bicycle Access Task Force, composed of key Bay Area bicycle leaders, and thousands of Bay Area bicyclists are in total support of this position.

The usual solution for providing bike access consists of extending the pavement an additional 12 feet to create a bike path (including access for pedestrians), separated from traffic by a low wall. Caltrans has estimated this cost at \$84 million for the Skyway option. We do not support bicycle access on the shoulder.

However, the most practical, and by far the least expensive design, would be a **cantilevered bike path** attached to the bridge. Since this would be done in conjunction with building a new bridge, the additional cost would be marginal. While precise estimates could not be obtained, structural engineers will verify that the cost for the cantilevered design would be far less than half of the estimates furnished by Caltrans.

Work on the Western Bridge Retrofit is expected to start in the Fall of this year, just six months from now. The time to think of bike access for that section is NOW. Again, a cantilevered bike path will provide the least expensive solution.

We know that BCDG has been very supportive in the past for bike access, as has been demonstrated by their support for a Benicia Bridge Bike Shuttle, as well as a bike path on the new bridge. Caltrans has also shown far-sightedness by incorporating a bike path on the proposed Carquinez Bridge, and has also supported the Benicia Bridge bike path.

In summary, we strongly support bicycle access on the new Bay Bridge and on the San Francisco portion of the Bay Bridge. We feel that the decision of having access all the way between San Francisco and Oakland is one that needs to be made soon, because of Caltrans' construction schedule.

Although we realize that the Bay Bridge Design Task Force has been established to review designs for the eastern portion of the bridge only, your support for our quest for coast to coast access is invited. We ask that you request Caltrans to immediately explore designs for adding a cantilevered bike path to the western section of the bridge.

We appreciate your support.

Sincerely,

*Alexander Zuckermann*  
Alexander Zuckermann, Chair

**ORGANIZATIONAL MEMBERS:** Alameda Cycle Touring Club, American Youth Hostels, Benicia Bicycle Club, Bicycle Built for One World, Bicycle Trails Council of East Bay, Bicycle Works, Bridgestone Cycle, Cherry City Cyclists, Eagle Cycling Club, East Bay Bicycle Coalition, Fremont Freewheelers, Greenbelt Alliance, Grizzly Peak Cyclists, League of American Wheelmen, Pedalera Bicycle Club, Rainbow Grocery, RIDES for Bay Area Commuters, Santa Clara Valley Bicycle Association, Santa Rosa Cycling Club, Sierra Club, Skyline Cycling Club, Valencia Cyclery, Valley Spokesmen, West Marin Pistas, Western Wheelers.

**CONSULTING MEMBERS:** AC Transit, Association of Bay Area Governments (ABAG), Bay Conservation and Development Commission (BCDC), Bay Planning Coalition, California Department of Transportation (CALTRANS), City of Fremont, City of Martinez, City of San Francisco, Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Metropolitan Transportation Commission (MTC), Ridge Trail Project, San Mateo County Planning Division, San Francisco Bay Association.